Sultan Qaboos University Med J, May 2013, Vol. 13, Iss. 2, pp. 323-324, Epub. 9th May 13
Submitted 30th Jan 13
Revisions Req. 18th Nov 12 & 2nd Jan 13, Revisions Recd. 4th Dec 12 & 16th Jan 13
Accepted 7th Jul 13

INTERESTING MEDICAL IMAGE

Lost and Found

Unusual location of a urinary tract calculus

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فقد ثم تم العثور عليه

موقع غير عادي لحصوة في المجرى البولي

سخبال ساوهني و أنوبما كاكاريا

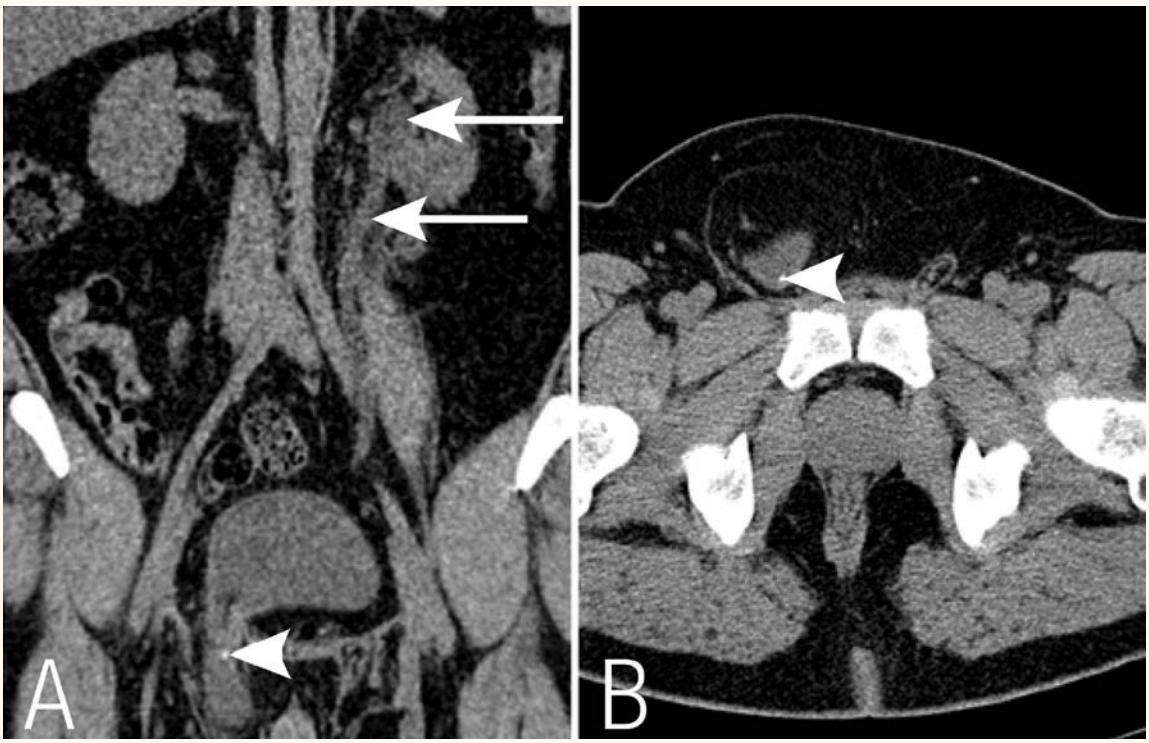

Figure 1 A–B: (A) Oblique coronal reformation of the un-enhanced computed tomography (CT) scan shows mild left hydronephrosis (long white arrow) and left hydro-ureter with periureteric fat stranding (short white arrow). No obvious calculus is seen in the left ureter. The right-sided direct inguinal hernia is seen containing a small part of urinary bladder and a small calculus within it (arrowhead). **(B)** The axial unenhanced CT of the abdomen does not reveal a calculus in the left kidney or ureter, the left-sided hydroureteronephrosis with surrounding fat stranding raises a strong possibility of the recent passage of a calculus through the left-sided urinary tract. Incidentally, a right direct inguinal hernia containing part of the urinary bladder and a small calculus within it (arrowhead) should be noted.

A 41-year-old male patient presented to the Emergency Department (ED) of Sultan Qaboos University Hospital (SQUH) complaining of left flank pain of one day's duration which was colicky and increasing in intensity. There was no history of fever, nausea or vomiting or other significant medical history; however, a similar episode had occurred previously. The patient's vital signs were stable and he was afebrile. Physical examination of the abdomen was non-contributory; routine microscopic urinalysis was normal. In view of the suspicion of left renal

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colic, he was referred for a non-contrast enhanced computed tomography (NCCT) scan, the gold standard at SQUH to assess urinary tract calculi in patients presenting with renal colic. The scan showed significant left perinephric fat stranding and mild left hydroureteronephrosis and evidence of periureteric fat stranding around the left ureter. No calculi could be identified in the left kidney or the left ureter. There was a direct inguinal hernia on the right side which contained part of the urinary bladder and a small radio-opaque calculus. These findings suggested the recent passage of a left ureteric stone into the bladder and the migration of this stone into the herniated part of the urinary bladder. It is also possible that the patient had passed out the ureteric stone via the urethra, and that the stone in the herniated bladder was an incidental finding. Clinically, the pain decreased over the period of observation in the ED, and the patient was discharged. At Urology Clinic follow-ups, there was no recurrence of pain, and the patient was managed conservatively. Inguinal hernias can be direct or indirect; the Hesselbach triangle is usually the site for direct inguinal hernias. On CT, the direct inguinal hernia lies medial to the inferior epigastric artery.[1] A total of 1–3% of all inguinal hernias involve the bladder;[2] in obese men aged 50–70 years, the incidence may reach 10%.[3] Inguinal hernias generally occur on the right side.[2] Urinary bladder hernias are mostly diagnosed incidentally during hernia surgeries,[4] or during imaging.[2] The herniated parts of the urinary bladder can contain tumors or calculi.[2,5] These may migrate from upper tracts or form *de novo* in the hernia due to stasis. CT is the best modality for the diagnosis and evaluation of inguinoscrotal urinary bladder herniation after injection of intravenous contrast. The post-processing of the CT using 3D reconstructions can demonstrate the contents of the hernia and its relationships.[6]

Our patient's calculus, could possibly have passed from the left ureter. However, it is possible that it may instead have travelled to the herniated component of the urinary bladder and been overlooked, especially as the herniated part of the bladder was small and did not significantly distort the urinary bladder in the pelvis. Therefore, we suggest that the protocol for the routine NCCT of the kidney, ureter and bladder for urolithiasis should extend below the pubic symphysis so as not to miss posterior urethral calculi or calculi in unusual areas.

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